IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

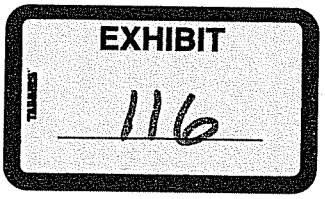
STATE OF OKLAHOMA,	)	
	)	
Plaintiff,	)	
	)	
v.	)	**Case No. 05-cv-329-GKF(PJC)**
	)	
TYSON FOODS, INC., et al.,	)	
	)	
Defendants.	)	

DECLARATION OF ROGER L. OLSEN, Ph.D.

I, Roger L. Olsen, Ph.D., hereby declare as follows:

1. Since February 1985, I have been an employee of Camp Dresser & McKee Inc. ("CDM"), an environmental consulting firm. I currently hold the position of Senior Vice President and Senior Geochemist with CDM. My educational background includes a Bachelor of Science degree with high distinction in Mineral Engineering Chemistry from the Colorado School of Mines, Golden, Colorado in 1972 and a Doctor of Philosophy degree in Geochemistry from the Colorado School of Mines in 1979.

2. From 1975 to 1978, I was an instructor in chemistry and geochemistry at the Colorado School of Mines. I taught courses in general chemistry and quantitative analysis. From 1978 to 1979, I was a senior research chemist with Rockwell International at the Rocky Flats plant. I was responsible for evaluating methods to clean up contaminated soil at Rocky Flats and other Department of Defense facilities. From 1979 to 1983, I was a project supervisor with D'Appolonia Consulting Engineers. In 1983, International Technology (IT) acquired the portion of D'Appolonia for which I worked. At D'Appolonia and IT, I performed many evaluations related to environmental contamination. In 1985, I joined CDM where I continued to evaluate environmental



contamination. I have extensive experience in performing environmental investigations and studies, evaluating the environmental fate and transport of chemicals in the environment and determining the cause or source of contamination in the environment. In all, I have worked on or evaluated environmental conditions at over 500 sites. I am the author or coauthor of over 120 publications/presentations and over 400 technical reports relating to environmental contamination.

3. In November 2004, CDM was retained by the Oklahoma Attorney General to perform an investigation concerning environmental contamination found in the Illinois River Watershed ("IRW"). I have been CDM's project technical director since inception of the project. In this capacity, I have helped plan and direct a systematic investigation of the environmental contamination found in the IRW. This investigation included collection and laboratory analyses of poultry waste, soils, surface waters, groundwaters and sediments throughout the IRW.

4. On May 14, 2008, I submitted an Expert Report to the Defendants in the above-captioned litigation. This Expert Report contains statements, findings, analysis and opinions related to the work CDM's investigation of the IRW. Also included in the Expert Report is a detailed description of the various lines of evidence which tend to prove that land applied poultry is the dominant source of contamination in the IRW.

5. The following statements and opinions are taken directly from my Expert Report, pp. 6-66 – 6-67:

> "[M]ultiple lines of evidence were used to evaluate the sources of contamination in the IRW. The multiple lines of evidence all support that poultry waste disposal by land application is a major source of contamination including phosphorus and bacteria in the IRW. These lines of evidence include the chemical and bacterial composition of major waste sources compared to contamination in the IRW, mass balance calculations showing that poultry waste is a major source of

contamination, fate and transport observations for poultry waste contaminants through out the IRW, analyses and detection of a poultry specific biomarker and PCA evaluations showing poultry waste contamination in [is] [corrected in July 25, 2008, Errata, pg 6] a dominant source. These lines of evidence can be used to test the hypotheses stated.... The conclusions concerning the hypotheses follow:

- Land application of poultry waste affects the chemical and bacterial water and sediment composition of the IRW and the affect is observable in surface water, groundwater and sediments collected from the IRW. Poultry waste is the dominant source of contamination in the IRW.

- WWTP discharges into rivers affect the chemical and bacterial water composition of the IRW. The affect is observable in surface waters collected from the IRW. The effect is not as large as the effect of poultry waste disposal in the IRW.

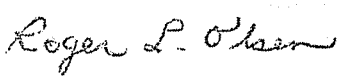
- Cattle manure deposited in fields and rivers affects the chemical and bacterial composition; however, no dominant impact is observed from cattle waste in the PCA."

6. Figures 6.5-2, 6.5-4, 6.5-6 and 6.5-8 of my Expert Report provide a summary of the concentrations of total phosphorus, soluble reactive phosphorus, enterococci and total organic carbon in various environmental components throughout the IRW (edge field samples, small tributary samples, larger river samples, Lake Tenkiller samples, and reference samples). The edge of field samples have very elevated concentrations of these parameters and by far have the highest concentrations of any of the other environmental components.

7. Appendix D, Table 1, Summary of Poultry Waste FAC Samples in my Expert Report provides a summary of the chemical and bacterial composition of poultry waste samples collected in the IRW. Total Phosphorus concentrations ranged from 10,114 to 30,559 mg/kg with an average concentration of 20,056 mg/kg,

I declare under penalty of perjury, under the laws of the United States of America, that the foregoing is true and correct.

Executed on the 15th day of May, 2009.



Roger L. Olsen, Ph.D.